

third and fourth discrete counter surfaces for engagement selectively by a combination surface of the second set, and the combination surface of the second set corresponding to said first locking disc is provided selectively with one of at least two combination values,

and wherein said first locking disc has fifth and sixth counter surfaces and seventh and eighth counter surfaces, the counter surfaces serving for the same turning direction being located in pairs diametrically on either side of the turning axis (D') of said first locking disc.

Claims 12-27, cancel.

REMARKS

Applicant gratefully acknowledges that the examiner has indicated that claims 4, 9 and 11 contain allowable subject matter. Claims 9 and 11 have been rewritten in independent form and it is believed that these claims are now allowable.

Claims 1-3, 5, 6, 8 and 10 stand rejected under 35 USC 102 over GB '119.


Applicant proposes to amend claim 1 to specify that the first discrete counter surface bounding the key opening of the first code locking disc corresponds to a smaller turning angle of the key and a second discrete counter surface corresponds to a larger turning angle. This proposed limitation clearly distinguishes over GB '119, in which the two counter surfaces identified by the examiner correspond to equal turning angles of the key.

The proposed amendment is necessary in order to distinguish claim 1 clearly over the disclosure of GB '119. The amendment was not earlier presented because it was not necessary to distinguish over the prior art previously applied to claim 1. The proposed limitation is included in claim 4, which the examiner has indicated as containing allowable subject matter. Claim 4 contains an additional limitation regarding the second counter surface extending substantially to the central normal of the central axis of the key opening, but this limitation is not necessary to distinguish over GB '119.

Since claim 1 is patentable, it follows that the dependent claims also are patentable.

Claims 12-27 have been cancelled. Applicant reserves the right to include claims that are directed to the subject matter of claims 12-27 in one or more divisional or continuation applications.

Respectfully submitted,



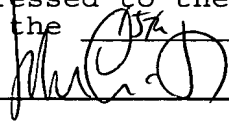
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Pekka MIELONEN et al

Art Unit: 3627

Application No: 09/405,436

Examiner:
L. Gall

Filed: September 23, 1999

For: CYLINDER LOCK-KEY-COMBINATION

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TO 3600 MAIL ROOM

SCHEDULE OF CLAIM AMENDMENTS

Claims 1, 4, 9 and 11, rewrite as follows:

1. (Twice Amended) A cylinder lock and key combination comprising:
 - a lock body,
 - a turnable lock cylinder located inside the lock body and having an axial slot,
 - a set of code locking discs located inside the lock cylinder, each locking disc having at least one peripheral notch and a key opening and being turnable in the lock body in a first turning direction by application of turning force to a counter surface bounding the key opening, each locking disc having an opening position in which its peripheral notch is at the position of the axial slot in the lock cylinder, such that when all the locking discs are in their respective opening positions the peripheral notches form a uniform channel at the position of the axial slot, the key openings of at least first and second code locking discs each being bounded by at least two discrete counter surfaces such that the first code locking disc can be turned in said first turning direction by application of turning force to any one of said discrete counter surfaces of the first code locking disc and the second code locking disc can be turned in said first turning direction by application of turning force to any one of said discrete counter surfaces of the second code locking disc,
 - a locking bar having a locking position in which it prevents turning of the cylinder relative to the lock body and a releasing position in which it is received in the channel formed by the peripheral notches of the locking discs and releases the cylinder for turning relative to the lock body, and
 - a key insertable in the lock when the locking discs are at an initial position, the key having a set of combination surfaces

corresponding respectively to the locking discs, for engaging a counter surface of each locking disc and applying turning force thereto when the key is inserted in the lock and is turned in the first turning direction, so that the locking discs are turned in the first turning direction to their respective opening positions,

and wherein the combination surface corresponding to said first code locking disc is provided with a first of at least two combination values and the combination surface corresponding to said second code locking disc is provided with a second of said at least two combination values, and the first and second combination values are such that the first code locking disc is turnable in the first turning direction by a key of which the combination surface corresponding to the first code locking disc has either said first combination value or said second combination value and the second locking disc is turnable in the first turning direction by a key of which the combination surface corresponding to the second locking disc has either said first combination value or said second combination value, but only a key of which the combination surface corresponding to the first code locking disc has the first combination value and the combination surface corresponding to the second locking disc has the second combination value is able to turn the first and second code locking discs to their respective opening positions,

and wherein a first of said discrete counter surfaces bounding the key opening of the first code locking disc corresponds to a smaller turning angle of the key and a second of said discrete counter surfaces corresponds to a larger turning angle.

4. (Amended) A cylinder lock and key combination according to claim 1, wherein [a first of said discrete counter surfaces corresponds to a smaller turning angle of the key and a second of said discrete counter surfaces corresponds to a larger turning angle and] the second counter surface bounding the key opening of the first code locking disc extends substantially to the central normal (E) of the central axis (D) of the key opening.

9. (Amended) A cylinder lock and key combination [according to claim 8,] comprising:

a lock body,
a turnable lock cylinder located inside the lock body and having an axial slot,

a set of code locking discs located inside the lock cylinder, each locking disc having at least one peripheral notch and a key opening and being turnable in the lock body in a first turning direction by application of turning force to a counter surface bounding the key opening, each locking disc having an opening position in which its peripheral notch is at the position of the axial slot in the lock cylinder, such that when all the locking discs are in their respective opening positions the peripheral notches form a uniform channel at the position of the axial slot, the key openings of at least first and second code locking discs each being bounded by at least two discrete counter surfaces such that the first code locking disc can be turned in said first turning direction by application of turning force to any one of said discrete counter surfaces of the first code locking disc and the second code locking disc can be turned in said first turning direction by application of turning force to any one of said discrete counter surfaces of the second code locking disc,

a locking bar having a locking position in which it prevents turning of the cylinder relative to the lock body and a releasing position in which it is received in the channel formed by the peripheral notches of the locking discs and releases the cylinder for turning relative to the lock body, and

a key insertable in the lock when the locking discs are at an initial position, the key having a set of combination surfaces corresponding respectively to the locking discs, for engaging a counter surface of each locking disc and applying turning force thereto when the key is inserted in the lock and is turned in the first turning direction, so that the locking discs are turned in the first turning direction to their respective opening positions,

and wherein the combination surface corresponding to said first code locking disc is provided with a first of at least two combination values and the combination surface corresponding to said second code locking disc is provided with a second of said at least two combination values, and the first and second combination values are such that the first code locking disc is turnable in the first turning direction by a key of which the combination surface corresponding to the first code locking disc has either said first combination value or said second combination value and the second locking disc is turnable in the first turning direction by a key of which the combination surface corresponding to the second locking disc has either said first combination value or said second

combination value, but only a key of which the combination surface corresponding to the first code locking disc has the first combination value and the combination surface corresponding to the second locking disc has the second combination value is able to turn the first and second code locking discs to their respective opening positions

wherein the lock is operable in only one turning direction and the key opening of said first locking disc is bounded by a return surface which cooperates with the key to return said first locking disc to a locking position when the key is turned in a second turning direction, opposite said first turning direction, the return surface being opposite to the counter surfaces with regard to the central axis of said one locking disc,

and wherein said return surface is aligned with one of the counter surfaces of said first locking disc.

11. A cylinder lock and key combination [according to claim 10,] comprising:

a lock body,

a turnable lock cylinder located inside the lock body and having an axial slot,

a set of code locking discs located inside the lock cylinder, each locking disc having at least one peripheral notch and a key opening and being turnable in the lock body in a first turning direction by application of turning force to a counter surface bounding the key opening, each locking disc having an opening position in which its peripheral notch is at the position of the axial slot in the lock cylinder, such that when all the locking discs are in their respective opening positions the peripheral notches form a uniform channel at the position of the axial slot, the key openings of at least first and second code locking discs each being bounded by at least two discrete counter surfaces such that the first code locking disc can be turned in said first turning direction by application of turning force to any one of said discrete counter surfaces of the first code locking disc and the second code locking disc can be turned in said first turning direction by application of turning force to any one of said discrete counter surfaces of the second code locking disc,

a locking bar having a locking position in which it prevents turning of the cylinder relative to the lock body and a releasing position in which it is received in the channel formed by the

peripheral notches of the locking discs and releases the cylinder for turning relative to the lock body, and

a key insertable in the lock when the locking discs are at an initial position, the key having a set of combination surfaces corresponding respectively to the locking discs, for engaging a counter surface of each locking disc and applying turning force thereto when the key is inserted in the lock and is turned in the first turning direction, so that the locking discs are turned in the first turning direction to their respective opening positions,

and wherein the combination surface corresponding to said first code locking disc is provided with a first of at least two combination values and the combination surface corresponding to said second code locking disc is provided with a second of said at least two combination values, and the first and second combination values are such that the first code locking disc is turnable in the first turning direction by a key of which the combination surface corresponding to the first code locking disc has either said first combination value or said second combination value and the second locking disc is turnable in the first turning direction by a key of which the combination surface corresponding to the second locking disc has either said first combination value or said second combination value, but only a key of which the combination surface corresponding to the first code locking disc has the first combination value and the combination surface corresponding to the second locking disc has the second combination value is able to turn the first and second code locking discs to their respective opening positions,

wherein the lock is operable in two turning directions and each locking disc is turnable in a second turning direction, opposite the first turning direction, by application of turning force to a counter surface bounding the key opening, the key has a second set of combination surfaces for engaging a counter surface of each locking disc when the key is turned in the second turning direction, the key opening of said first locking disc is bounded by third and fourth discrete counter surfaces for engagement selectively by a combination surface of the second set, and the combination surface of the second set corresponding to said first locking disc is provided selectively with one of at least two combination values,

and wherein said first locking disc has fifth and sixth counter surfaces and seventh and eighth counter surfaces, the

counter surfaces serving for the same turning direction being located in pairs diametrically on either side of the turning axis (D') of said first locking disc.